



DEPARTMENT ORDER

**CPK Manufacturing, LLC
 Kennebec County
 Augusta, Maine
 A-1117-77-1-A**

**Departmental
 Findings of Fact and Order
 New Source Review
 NSR # 1**

FINDINGS OF FACT

After review of the air emission license application, staff investigation reports, and other documents in the applicant’s file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	CPK Manufacturing, LLC
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	326122 (Plastics, Pipe & Pipe Fitting Manufacturing), 326199 (All Other Plastics Product Manufacturing)
NATURE OF BUSINESS	Fiberglass Composite Manufacturing Facility
FACILITY LOCATION	681 Riverside Drive, Augusta, Maine 04330

B. NSR License Description

CPK Manufacturing, LLC (CPK) has requested a New Source Review (NSR) license to include the addition of a new filament winding machine. This addition will increase the facility’s potential HAP emissions to above the major source threshold, changing the facility from an area source of HAP to a major source of HAP.

C. Emission Equipment

The following new equipment is addressed in this NSR license:

Process Equipment

Equipment	Production Rate	Materials Used in Process	Pollutants	Primary VOC/HAP
FW #2	122 lb/hr of resin	Polyester resin, vinyl ester resin, epoxy resin	VOC, HAP	Styrene

D. Definitions

Closed molding means a grouping of processes for fabricating composites in a way that HAP-containing materials are not exposed to the atmosphere except during the material loading stage (e.g., compression molding, injection molding, and resin transfer molding). Processes where the mold is covered with plastic (or equivalent material) prior to resin application and the resin is injected into the covered mold are also considered closed molding.

Filament application means an open molding process for fabricating composites in which reinforcements are fed through a resin bath and wound onto a rotating mandrel. The materials on the mandrel may be rolled out or worked by using nonmechanical tools prior to curing. Resin application to the reinforcement on the mandrel by means other than the resin bath, such as spray guns, pressure-fed rollers, flow coaters, or brushes is not considered filament application.

Open molding means a process for fabricating composites in a way that HAP-containing materials are exposed to the atmosphere. Open molding includes processes such as manual resin application, mechanical resin application, filament application, and gel coat application. Open molding also includes application of resins and gel coats to parts that have been removed from the open mold.

Vapor-suppressed resin means a resin containing a vapor suppressant added for the purpose of reducing styrene emissions during curing.

E. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application for CPK does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the “Significant Emission Increase” levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. For a major stationary source, the expected emissions increase from each new, modified, or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions (BAE) for existing affected emission units are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. The selected 24-month baseline period can differ on a pollutant-by-pollutant basis. However, there are no existing emission units which are considered “affected” by this project.

The only equipment addressed by this license is a new emission unit (FW #2). Baseline actual emissions for new equipment are considered to be zero for all pollutants; therefore, the selection of a baseline year is unnecessary.

2. Projected Actual Emissions

New emission units must use potential to emit (PTE) emissions for projected actual emissions (PAE). This emission rate was based off the maximum hourly production capability of the unit and the number of possible hours of production in a year. The only criteria pollutant emitted by FW #2 is volatile organic compounds (VOC). The emissions are presented in the following table.

Projected Actual Emissions

Equipment	VOC (tpy)
FW #2	7.2

3. Emissions Increases

Emissions increases are calculated by subtracting BAE from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
VOC	0	7.2	7.2	40

4. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115. CPK has submitted an application to incorporate the requirements of this NSR license into the facility's Part 70 air emission license.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental, and energy impacts.

B. Filament Winder #2 (FW #2)

1. Equipment Description

FW #2 is a filament winding machine which uses an open molding manufacturing process to produce fiberglass composite pipes or cylinders. Glass roving strands are coated with resin through an open bath and then continuously wound onto a mandrel to form the fiber architecture of the part. An example of products produced on this machine would be corrosion pipe, which is exposed to the pressurized flow of hazardous gases. As such, any seams, cracks, or porosity in the final product would be unacceptable, and the open molding technique used on FW #2 eliminates these shortcomings.

2. PTE Calculations

The potential emissions from FW #2 were calculated by using the emissions calculation method detailed in 40 C.F.R. Part 63, Subpart WWWW, Table 1 and the *Unified Emission Factors for Open Molding of Composites (UEF)*. By using a resin with a HAP/VOC content of 44%, as detailed in their application, it was determined that the uncontrolled emissions from using non-vapor suppressed resin would be 182 lb/ton of

resin used. Using vapor suppressed resin, the uncontrolled HAP/VOC emission rate would be 118.3 lb/ton of resin used.

CPK plans to operate FW #2 for approximately 2000 hours per year, as detailed in their BACT analysis. The maximum usage rate was shown to be 122 lb/hr of resin, yielding a yearly uncontrolled emission rate of 11.1 tons of HAP/VOC using non-vapor suppressed resin, and 7.2 tons of HAP/VOC using vapor suppressed resin.

3. BACT Findings

CPK submitted a BACT analysis for control of emissions from FW #2.

In the analysis, CPK explored the option to use a Regenerative Thermal Oxidizer (RTO), but the cost per ton of controlled VOC emissions was determined to be not economically feasible due to the high initial capital cost of 1.2 million dollars and continuing energy cost associated with its operation yielding an annual cost of 17,000 dollars/ton of pollutant controlled. The use of a closed molding technique was also explored, but due to the requirements of the finished product to be free of seams, cracks and porosity, closed molding is not considered technically feasible.

The use of a vapor suppressed resin would yield a reduction of uncontrolled emissions of 3.9 ton/year, or a 35% reduction with negligible added costs.

The Department finds that BACT for FW #2 is the use of vapor suppressed resins and a VOC/HAP emission limit from FW #2 of 7.2 tons/year.

Emissions from open molding of composites shall be calculated using the factors found in the most recent version of *Unified Emission Factors for Open Molding of Composites (UEF)*.

4. 40 C.F.R. Part 63, Subpart WWWW

CPK is subject to the *NESHAP: Reinforced Plastic Composites Production*, 40 C.F.R. Part 63, Subpart WWWW and its conditions as denoted in their existing Part 70 License.

C. Incorporation into the Part 70 Air Emission License

Per *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70 license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. An application to incorporate the requirements of this NSR license into the Part 70 air emission license has been submitted to the Department.

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee. Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included. Maximum potential emissions were calculated based on the following assumptions:

- Operating Boiler #1 for 8,760 hr/yr;
- Operating the Air Heater for 8,760 hr/yr; and
- CPK's maximum allowable Process Source emissions.

Please note, this information provides the basis for fee calculation only and should not be construed to represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boiler #1	0.6	0.6	3.7	1.0	0.3	0.1
Air Heater	0.2	0.2	0.1	0.7	0.4	0.1
Existing Process Sources	-	-	-	-	-	24.7
FW #2	-	-	-	-	-	7.2
Total TPY	0.8	0.8	3.8	1.7	0.7	32.1

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor modification at an existing minor or major source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM ₁₀	25
SO ₂	50
NO _x	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this NSR license.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants New Source Review License Amendment A-1117-77-1-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision of this License or part thereof shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

(1) **Filament Winding Machine #2 (FW #2)**

- A. Emissions from FW #2 shall not exceed 7.2 tpy of VOC and 7.2 tpy of HAP on a 12-month rolling total basis. Compliance shall be demonstrated by the recordkeeping requirements denoted in Condition (1)(D) of this license.
[06-096 C.M.R. ch. 115, BACT]
- B. Emissions from open molding of composites shall be calculated using the factors found in the most recent version of *Unified Emission Factors for Open Molding of Composites (UEF)*. [06-096 C.M.R. ch. 115, BACT]
- C. All resins used on FW #2 shall be vapor suppressed. [06-096 C.M.R. ch. 115, BACT]

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D. 40 C.F.R. Part 63, Subpart WWWW

CPK shall meet all applicable requirements in 40 C.F.R. Part 63, Subpart WWWW, as denoted in their existing Part 70 Air Emission License.

DONE AND DATED IN AUGUSTA, MAINE THIS 15th DAY OF JUNE, 2020.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for
GERALD D. REID, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 4/2/20

Date of application acceptance: 4/3/20

Date filed with the Board of Environmental Protection:

This Order prepared by Chris Ham, Bureau of Air Quality.

FILED
JUN 15, 2020
State of Maine
Board of Environmental Protection